



The AE Techron **7548** amplifier is a DC-enabled, high-powered unit designed to provide very low noise, low harmonic distortion and fast slew rates. The 7548 can be used singly or in series to meet or exceed Aviation AC power tests requirements found in RTCA/DO 160.

For testing to these Specifications:

MILITARY

MIL STD 461
RS101

AVIATION

DO 160, Section 16
115/230VAC
Single or Three Phase
Harmonic
DC Offset
Surge and Drop outs

AUTOMOTIVE STANDARD

SAE J1113
Part 22

AUTOMOTIVE OEM

CS2009.1
RI 140

The 7548 can be used as a Voltage or Current Amplifier, so it also makes an ideal choice for driving large Helmholtz coils specified in MIL STD 461 or various Automotive Standards.

Two 7548 connected in series can output 240V RMS at 20 A RMS. The 7548 can also be connected to form large, low-distortion, two- or three-phase power systems with voltages of up to 600V L-L and 360 L-N.

The 7548 can operate in either voltage or current mode and features robust output devices and a power range of over 3300 watts RMS. It can safely drive a wide range of resistive, inductive loads.



Features

- Low noise, DC enabled, 0 – 130VAC power source.
- Current-source or Voltage -source modes of operation.
- 3.3 kVA continuous.
- DC to 30 kHz at rated power; DC to 100 kHz at reduced power.
- Can be combined to form larger, more capable systems.
 - Single phase AC with DC offset capable systems of 120VAC, 240VAC or 360VAC.
 - Three phase AC with DC offset capable systems of 208VAC, 400VAC or up to 600VAC L-L.
- Four quadrant operation (source and sink).
- 3 mOhm Output Impedance.

7548 AC Specifications

Ohms	RMS OUTPUT (100% Duty Cycle)				
	5 Minute,		1 Hour,		
	Volts	Amps	Volts	Amps	Watts
Open	141	0	141	0	0
16	138	8	138	8	1170
8	129	16	129	16	2104
4	117	29	117	29	3381
2			61	30	1848

Typical Performance of 7548 x 3 Series System for DO 160 Section 16 Testing

		Continuous	In Rush / 100 ms
		Steady State	230VAC
Abnormal Surge	230VAC	25A	25A

**Performance
(Controlled Voltage Mode)**

Note: Testing performed at 208V/415VAC. 7548 amplifiers can operate from 400VAC ±10%. Since these amplifiers have an unregulated power supply, low line conditions may slightly affect the maximum voltage potential.

7548P accuracy was measured when driven into a 10 ohm load with between 0.1VDC and 6VDC or between 0.2VAC and 5VAC presented at its inputs.

Frequency Response:

DC – 30 kHz, +0.1, –0.5 dB

Maximum Continuous Output Power:

3300 watts RMS

Power Sinking:

1.2 kVA at 120VAC

Slew Rate:

41 V/μSec

Phase Response:

± 5 degrees (10 Hz - 10 kHz)

Unit to Unit Phase Error:

+/- 0.1 degrees at 60Hz

Output Offset:

7548: Less than 5 mV, field adjustable to less than 1 mV

7548P: Less than 200 μV

Output Offset Current:

Less than 10 milliamperes DC

DC Drift:

7548: ±1.5 mV

7548P: ± 400 μV (from cold to maximum operating temperature); ±200 μV (after 20 minutes of operation)

Residual Noise:

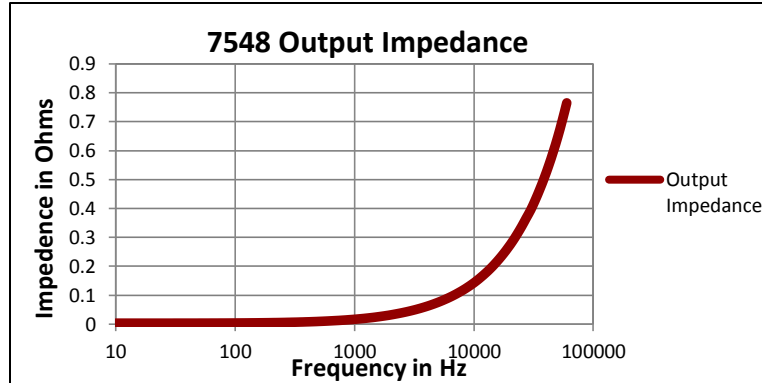
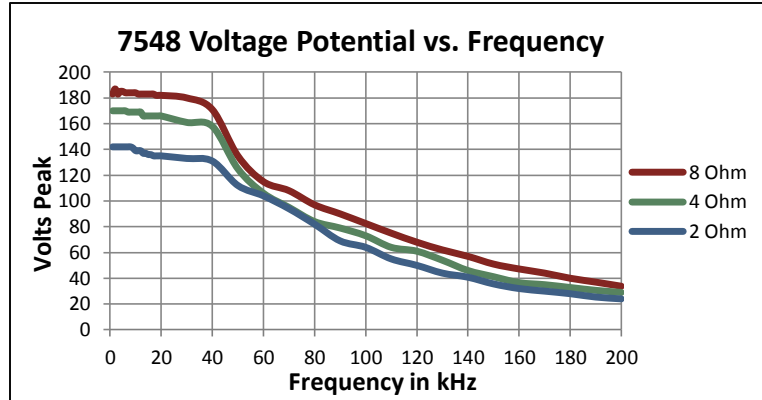
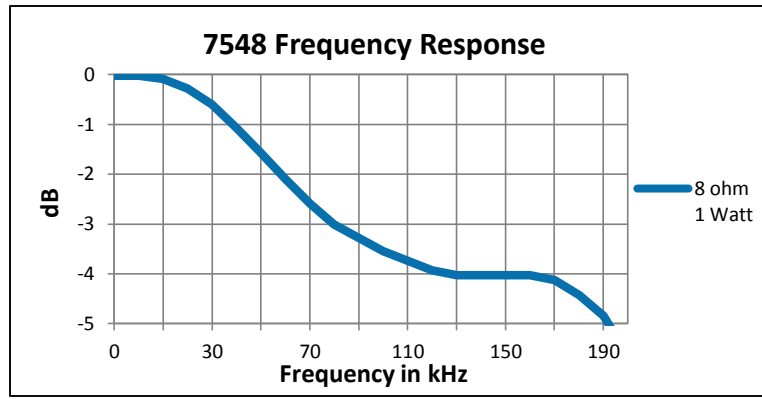
Unfiltered: Less than 75 μV

Filtered: (400 Hz – 30 kHz):

Less than 55 μV

THD:

DC - 30 kHz less than 0.1%
Input Characteristics



Input Characteristics

Balanced with ground:

Three terminal barrier block connector, 20k ohm differential

Unbalanced:

BNC connector, 10 kohm single ended

Gain:

Voltage Mode: 20 volts/volt

Current Mode: 20 amperes/volt

Gain Linearity (over input signal, from 0.2V to 5V):

7548: 0.1%

7548P:

DC: 0.0125%

AC: 0.03%

Max Input Voltage:

± 10 V balanced or unbalanced

Input Impedance:

20 kOhm differential

Common Mode Rejection Range:

± 11 VDC maximum

Common Mode Rejection Ratio:

70 dB

Display, Control, Status, I/O Front Panel

LED Displays indicate:

Run, Ready, Standby, Stop, and Fault conditions in the output stage

LCD Display:

Lists type of fault condition and gives suggested corrective action

Soft Touch Switches for:

Run (Enable), Stop, Reset

User Configurable:

LCD display can be configured for up to four simultaneous displays reporting one, two or all four of the following: Voltage Peak, Voltage RMS, Current Peak, and Current RMS

Back Panel

Power Connection:

NEMA-style locking receptacle; matching AC connector also included

Signal Output:

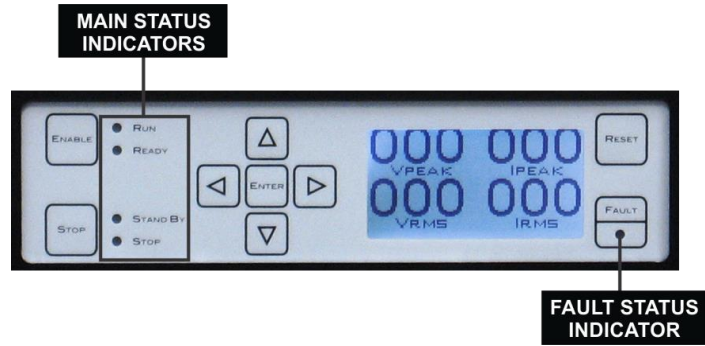
4-position terminal barrier block (OUTPUT/Common/SAMPLED Common/CHASSIS GROUND); resistor installed between SAMPLED Common AND CHASSIS GROUND is a 2.7-ohm, 2W, 5%, metal-oxide resistor

Signal Input:

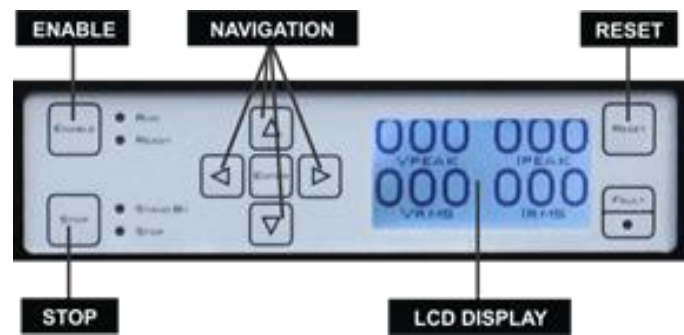
User-selectable Unbalanced BNC or Balanced Barrier Strip

Interlock Connector:

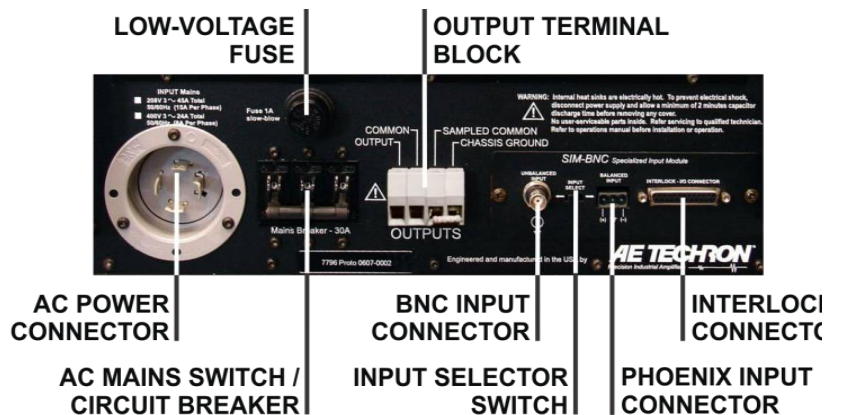
25-pin D-sub connection used for amplifier control and status applications; also used in multi-amplifier applications



7548 Front Panel Indicators



7548 Front Panel Display and Controls



7548 Back Panel

Communication Capabilities

Current Monitor:

± 1V / 20A ±1%

Reporting:

System Fault, OverTemp, Over Voltage, Overload

Control:

Force to Standby; Reset after a fault

Protection

Over/Under Voltage:

± 10% from specified supply voltage amplifier is forced to Standby

Over Current:

Breaker protection on both main power and low voltage supplies

Over Temperature:

Separate Output transistor, heat sink, and transformer temperature monitoring and protection

Physical Characteristics

Chassis:

Black powder-coat chassis with all aluminum construction; designed for stand-alone or rack-mounted operation. The amplifier occupies five EIA 19-inch-wide rack units

Weight:

103 lbs. (46.7 kg)

AC Power:

Three-phase, 208VAC ±10%, 47-60 Hz, 20A AC service (400VAC ±10%, 15A version available). A toggle switch circuit breaker opens all legs of the AC mains on excess current demand.

Operating Temperature:

10°C to 50°C (50°F to 122°F), Maximum Output Power de-rated above 30°C (86°F)

Humidity:

70% or less, non-condensing

Cooling:

Forced air-cooling from front to back through removable filters via four 100 ft³/min. fans. No space is required between rack-mounted amplifiers. Air filters are removable from the rear via one fastener per side and may be eliminated if cabinet filtration is provided.

Dimensions:

19 in. x 22.8 in. x 8.75 in. (48.3 cm x 57.9 cm x 22.3 cm). Unit occupies five EIA 19-inch-wide rack units.

AE Techron Sales Representative